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REMARKS

Applicants concurrently file herewith a Declaration under 35 U.S.C. §1.132.

Claims 1, 3-8, 10-15, and 17-25 are all of the claims presently pending in the application. Claims 6 and 13 have merely been editorially amended.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Entry of this Amendment is believed proper since no new issues are being presented to the Examiner that would require further consideration and/or search and the claim amendments included herein place the application in better form for appeal by materially reducing the issues for appeal.

Claims 1, 3-8, 10-15 and 17 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 6 and 13 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Claims 1, 3-7 and 21-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa et al. (U.S. Patent No. 6,116,055) (hereinafter "Ishikawa"). Claims 8, 10-15 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Antos et al. (U.S. Patent No. 6,289,698) (hereinafter "Antos").

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention of exemplary claim 1, provides a method for sintering a porous glass-material having a core inside the porous-glass material, wherein the range of the outer diameter(d) of the porous-glass material is within a range of $0.5xD < d < 0.9xD$ (e.g., see Application at page 9, line 24 through page 10, line 31). This feature is important for ensuring uniform vitrification in the radial direction of the porous-glass material (see Application at page 9, lines 30-33).

II. THE INDEFINITENESS REJECTION

The Examiner has rejected claims 1, 3-8, 10-15 and 17 as allegedly being indefinite. Applicants submit that the Examiner's allegations, however, are clearly erroneous.

That is, the Examiner alleges, with respect to claims 3 and 10, that "it is unclear what is meant by the range being with the 0.6-0.8 range. 0.5-0.9 is clearly not within the 0.6-0.8 range" (see Office Action dated September 7, 2006 at page 2).

Applicants submit, however, that the claim language of dependent claims 3 and 10 clearly meets the standards set forth in the M.P.E.P. That is, while a claim may be indefinite if narrow and broader ranges are recited in the same claim, "[a] narrower range or preferred embodiment may also be set forth in another independent claim or in a dependent claim" (see M.P.E.P. § 2173.05(c); emphasis added by Applicants). "While a single claim that includes both a broad and a narrower range may be indefinite, it is not improper under 35 U.S.C., second paragraph, to present a dependent claim that sets forth

the narrower range for an element than the range set forth in the claim from which it depends. For example, if claim 1 reads 'A circuit...wherein the resistance is 70-150ohms.' and claim 2 reads 'The circuit of claim 1 wherein the resistance is 70-100 ohms.', then claim 2 should not be rejected as indefinite" (see M.P.E.P. § 2173.05(c); emphasis added by Applicants).

Applicants submit that claims 3 and 10 merely recite a narrower range, which further limits the ranged recited in the independent claims.

The Examiner further alleges, with respect to claims 5 and 12, that "it is unclear what is meant by the range being within the range" (see Office Action dated December 7, 2006 at page 2). The Examiner, however, is clearly incorrect.

Claims 5 and 12 merely recite a further limitation of the range of d. That is, the range of d must meet both of the limitations recited in independent claim 1 as well as the limitation recited in dependent claim 5.

With respect to the language of "selecting" and "based on", Applicants submit that this language is used to merely set forth the limitations on the claimed range (e.g., D or L).

In view of the above, the Examiner is respectfully requested to reconsider and withdraw this rejection.

III. THE WRITTEN DESCRIPTION REQUIREMENT REJECTION

The Examiner has rejected claims 6 and 13 as allegedly containing subject matter that fails to comply with the written description.

Applicants submit that the alleged unsupported claim language has been deleted

from claims 6 and 13, thereby rendering the Examiner's rejection moot.

IV. THE PRIOR ART REFERENCES

A. The Ishikawa Reference

The Examiner alleges that the claimed invention of claims 1 and 3-7 would have been obvious in view of Ishikawa. Applicants submit, however, that there are elements of the claimed invention which are neither taught nor suggested by, nor would have been obvious in view of, Ishikawa.

That is, Ishikawa does not teach or suggest a method for sintering a porous glass-material having a core inside the porous-glass material, wherein "*said predetermined range of said outer diameter (d) of said porous-glass material is within* $0.5xD < d < 0.9xD$" as recited in claim 1, and similarly recited in claims 8 and 15.

The test data table submit on page of the Declaration filed on July 19, 2006, and recreated below, verifies that a surface of the porous-glass material was not damaged in the case where $d/D<0.9$ (test numbers 1 and 2). Specifically, in the test results shown in the table, a judgment of acceptance depends upon whether or not even one of 50 test pieces (porous-glass material) was damaged. Accordingly, test numbers 1 and 2 ($d/D<0.9$, namely, claimed range) are accepted.

In stark contrast, test numbers 3 and 4 ($d/D>0.9$, namely, out of the claimed range) are not excepted. This evidence is a reason why the results of the claimed range ($d/D<0.9$) are truly important and truly unexpected.

Test No.	d (mm)	D (mm)	D/D	Number of test pieces of which surface was not damaged.	Number of test pieces of which surface was damaged.	Number of test pieces caused damage to the furnace.
1	350	400	0.88	50	0	0
2	360	400	0.90	50	0	0
3	370	400	0.93	34	16	0
4	380	400	0.95	0	50	3

Furthermore, Applicants submit herewith a Declaration (an executed version will be submitted imminently) providing further evidence of the importance and unexpected results of the claimed invention. In accordance with the test results shown in the table in the Declaration filed herewith (and reproduced herein below), a glass base material having a low eccentricity error of a core, the value of which is 0.3% of below, can be manufactured in the case where d/D>0.5 (test numbers 1 to 7, namely, claimed range). On the other hand, in the case where d/D<0.5 (test numbers 8 and 12, namely, out of claimed range), a glass base material having a relatively high eccentricity error of core is manufactured.

Applicants submit that this evidence supports the description at page 10, line 32 to page 11, line 3 of the specification as filed, such that the predetermined range of the outer diameter (d) of the porous-glass material may be determined so that an eccentricity error of a core inside of the glass base material manufactured by sintering the porous-glass material (e.g., 12) becomes 0.4% of less.

Test No.	d (mm)	D (mm)	L (mm)	d/D (-)	d/L (-)	Eccentricity error (%)
1	320	400	400	0.800	0.800	0.15
2	280	400	400	0.700	0.700	0.24
3	260	400	400	0.650	0.650	0.30
4	240	400	400	0.600	0.600	0.29
5	220	400	400	0.550	0.550	0.28
6	210	400	400	0.525	0.525	0.29
7	200	400	400	0.500	0.500	0.30
8	190	400	400	0.475	0.475	0.43
9	180	400	400	0.450	0.450	0.75
10	170	400	400	0.425	0.425	0.71
11	160	400	400	0.400	0.400	0.78
12	150	400	400	0.375	0.375	0.83

Accordingly, Applicants submit that claimed invention, including the claimed range ($0.5<d/D<0.9$), can clearly provide tremendous advantages such that a glass base material having a low eccentricity error of a core can be manufactured, and the porous-glass material may not contact with a sidewall of a furnace so that the porous-glass material is not damaged.

Moreover, with respect to the Examiner's position in the Response to Arguments (e.g., see Office Action dated September 7, 2006 at page 6, lines 1-8), Applicants submit that the claimed range ($0.5<d/D<0.9$) of the claimed invention facilitates a design of a

porous-glass material sintering apparatus (e.g., 10; see Figure 5 of Application). Specifically, a size of a diameter (D) of a ring heater (e.g., 9), which is suitable for a size of a diameter (d) of the porous-glass material (e.g., 2) can be calculated based on the claimed range (d/D) to prevent the porous-glass material (e.g., 2) from contacting with the sidewall of the furnace (e.g., 5) ($d/D<0.9$), and to prevent an eccentricity error of the glass base material from increasing ($d/D>0.5$).

Thus, the apparatus (e.g., 10) can be miniaturized under the condition that a clearance between the porous-glass material (e.g., 2) and the sidewall of the furnace (e.g., 5) become smaller as much as possible. Accordingly, the claimed range (d/D) of the present invention was not accidentally obtained, but was obtained by performing tests to find out a suitable range capable of preventing the porous-glass material from contacting with the sidewall of the furnace, and capable of preventing an eccentricity error of the glass base material from increasing. Based upon this concept, Applicants submit that the Examiner's position is erroneous.

Therefore, Applicants respectfully submit that the range recited in claim 1 (and similarly recited in claims 8 and 15) is clearly important and has not been arbitrarily selected as alleged by the Examiner and indeed has provided unexpectedly superior results over the closest prior art of record.

Therefore, Applicants submit that the claimed invention recites features that are not obvious in view of Ishikawa. Therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

B. The Antos Reference

The Examiner alleges that Antos would have been combined with Ishikawa to form the claimed invention of claims 8, 10-15 and 17. Applicants submit, however, that even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention.

That is, neither Ishikawa nor Antos, nor any combination thereof, teaches or suggests that "*said predetermined range of said outer diameter (d) of said porous-glass material is within* $0.5xD < d < 0.9xD$" as recited in claim 1 and similarly recited in claims 8 and 15.

As detailed in section A, above, Ishikawa does not teach or suggest this feature. Furthermore, Applicants respectfully submit that Antos fails to make up the deficiencies of Ishikawa.

The Examiner attempts to rely on column 4, lines 5-34 of Antos to support his allegations.

Nowhere, however, in this passage (nor anywhere else for that matter) does Antos teach or suggest a method for sintering a porous glass-material having a core inside the porous-glass material, wherein the predetermined range of <the outer diameter(d) of the porous-glass material is within $0.5xD < d < 0.9xD$. Indeed, the Examiner does not even allege that Antos teaches or suggests this feature. The Examiner merely relies upon Antos as teaching that it is known to stretch preforms to reduce bubbles.

Thus, Antos clearly fails to make up for the deficiencies of Ishikawa.

Therefore, Applicants respectfully submit that even if combined, the alleged combination of features does not teach or suggest each and every feature of the claimed

invention. Therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

IV. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicants submit that claims 1, 3-8, 10-15 and 17-25, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: December 7 2006

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I hereby certify that I am filing this paper via facsimile, to Group Art Unit 1731, at (571) 273-8300, on December 7, 2006.

Respectfully Submitted,

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